IN THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A fuel reforming device which generates reformate gas comprising hydrogen by reforming a mixture of a hydrocarbon fuel and air, comprising:

a fuel mixing chamber [[(24)]];

a fuel injector [[(1)]] which injects the hydrocarbon fuel into the fuel mixing chamber [[(24)]];

a first air distribution valve [[(10)]] which supplies air to the fuel mixing chamber [[(24)]] and generates an air-fuel mixture;

a second air distribution valve [[(11)]] which further supplies air to the air-fuel mixture in the fuel mixing chamber [[(24)]]; and

a reformer [[(5)]] comprising a reforming catalyst which generates reformate gas by causing the air-fuel mixture supplied from the fuel mixing chamber [[(34)]] to undergo reforming reaction, and an oxidation catalyst which causes the air-fuel mixture to undergo a catalytic combustion.

2. (Currently Amended) The fuel reforming device as defined in Claim 1, wherein the fuel reforming device further comprises a heater [[(4)]] which heats the fuel-air mixture, and a controller [[(30)]] functioning to control the heater [[(4)]] to heat the fuel-air mixture when the fuel reforming device starts operation [[(S1)]], and control an air supply amount of the first air distribution valve [[(10)]] to the fuel mixing chamber [[(24)]] to maintain an excess air factor of the air-fuel mixture in a predetermined lean state [[(S4)]].

3. (Currently Amended) The fuel reforming device as defined in Claim 2, wherein the fuel reforming device further comprises a sensor [[(32)]] which detects a temperature of the reformer [[(5)]], and the controller [[(30)]] further functions to determine whether or not the temperature of the reformer [[(5)]] is ascending in a state where the air-fuel mixture heated by the heater [[(4)]] is supplied to the reformer ~~(5) (S7)~~, and when the temperature of the reformer [[(5)]] is ascending, control the heater [[(4)]] to stop heating the air-fuel mixture [[(S9)]].

4. (Currently Amended) The fuel reforming device as defined in Claim 3, wherein the controller [[(30)]] further functions to determine whether or not the temperature of the reformer [[(5)]] is less than a predetermined temperature [[(S6)]], to increase a fuel injection amount of the fuel injector [[(1)]] with a preset increment [[(S4)]], to increase the air supply amount with a preset increment [[(S4)]], to determine whether or not an ascending rate of the temperature of the reformer [[(5)]] exceeds a predetermined rate in a state where the temperature of the reformer [[(5)]] is less than the predetermined temperature [[(S10)]], and when the ascending rate exceeds the predetermined rate, and to decrease the increment of the fuel injection amount and the increment of the air supply amount [[(S12)]].

5. (Currently Amended) The fuel reforming device as defined in Claim 4, wherein the controller [[(30)]] further functions, when the temperature of the reformer [[(5)]] is not less than the predetermined temperature, to decrease the air supply amount of the first air distribution valve [[(10)]] until the air excess factor of the air-fuel mixture reaches a predetermined rich state ~~(S107)~~, increase the air supply amount of the second air distribution valve [[(11)]] to the fuel mixing chamber [[(24)]] so as to compensate for the decrease of the air supply amount of the first air distribution valve ~~(10) (S106)~~, and then close the second air distribution valve ~~(11) (S16)~~.

6. (Currently Amended) The fuel reforming device as defined in Claim 1, wherein the fuel reforming device further comprises an air supply mechanism [[(9)]] which supplies air to the first air distribution valve [[(10)]] and the second air distribution valve [[(11)]], and a heat exchanger [[(6)]] which heats the air between the air supply mechanism [[(9)]] and the first air distribution valve [[(10)]] by performing heat exchange between the air and a gas discharged from the reformer [[(5)]].

7. (Currently Amended) The fuel reforming device as defined in ~~any one of~~ Claim 1 ~~through Claim~~ [[6]], wherein the fuel reforming device further comprises an air supply mechanism [[(9)]] which supplies air to the first air distribution valve [[(10)]], and a carbon monoxide removal device [[(8)]] which removes carbon monoxide from the reformate gas by a catalytic reaction using air, the first air distribution valve [[(10)]] is configured to bifurcate the air supplied from the air supply mechanism [[(9)]] to the fuel mixing chamber [[(24)]] and the second air distribution valve [[(11)]], and the second air distribution valve [[(11)]] is configured

to bifurcate air supplied from the first air distribution valve [[(10)]] to the fuel mixing chamber [[(24)]] and to the carbon monoxide removal device [[(8)]].

8. (Currently Amended) The fuel reforming device as defined in ~~any one of~~ Claim 1 ~~through Claim~~ [[6]], wherein the fuel reforming device is used together with a fuel cell stack [[(14)]] comprising an anode [[(14A)]] and a cathode [[(14B)]], and generating power by an electrochemical reaction between hydrogen in the reformate gas supplied to the anode [[(14A)]] and oxygen supplied to the cathode [[(14B)]], the fuel reforming device comprises an air supply mechanism [[(9)]] which supplies air to the first air distribution valve [[(10)]], the first air distribution valve [[(10)]] is configured to bifurcate the air supplied from the air supply mechanism [[(9)]] to the fuel mixing chamber [[(24)]] and the second air distribution valve [[(11)]], and the second air distribution valve [[(11)]] is configured to bifurcate the air supplied from the first air distribution valve [[(10)]] to the fuel mixing chamber [[(24)]] and the anode [[(14A)]].

9. (Currently Amended) The fuel reforming device as defined in ~~any one of~~ Claim 1 ~~through Claim~~ [[6]], wherein the fuel reforming device is used together with a fuel cell stack [[(14)]], comprising an anode [[(14A)]] and a cathode [[(14B)]], and generating power by the electrochemical reaction between hydrogen in the reformate gas supplied to the anode [[(14A)]] and oxygen supplied to the cathode [[(14B)]], and a combustor [[(16)]] which burns an anode effluent discharged from the anode [[(14A)]], the fuel reforming device comprises an air supply mechanism [[(9)]] which supplies air to the first air distribution valve [[(10)]], the first air distribution valve [[(10)]] is configured to bifurcate the air supplied from the air supply mechanism [[(9)]] to the fuel mixing chamber [[(24)]] and the second air distribution valve [[(11)]], and the second air distribution valve [[(11)]] is configured to bifurcate the air supplied from the first air distribution valve [[(10)]] to the fuel mixing chamber [[(24)]] and the combustor [[(16)]].

10. (Currently Amended) The fuel reforming device as defined in ~~any one of~~ Claim 1 ~~through Claim~~ [[6]], wherein the fuel reforming device is used together with a fuel cell stack [[(14)]] which generates electric power according to a power generation load using hydrogen in the reformate gas supplied by the fuel reforming device, and the fuel reforming device further comprises a heater [[(4)]] which heats the air-fuel mixture, a sensor [[(34)]] which detects the

power generation load, and a controller [[(30)]] functioning to calculate an increase amount of hydrocarbon fuel corresponding to an increase amount of the power generation load ~~(S21, S22)~~, to calculate a latent heat amount for vaporizing the increase amount of hydrocarbon fuel [[(S23)]], and to control the heater [[(4)]] to heat the air-fuel mixture for compensating the latent heat amount [[(S24)]].

11. (Currently Amended) The fuel reforming device as defined in ~~any one of~~ Claim 1 ~~through Claim~~ [[6]], wherein the fuel reforming device is used together with a fuel cell stack [[(14)]] which generates electric power according to a power generation load using hydrogen in the reformate gas supplied by the fuel reforming device, and the fuel reforming device further comprises an air supply mechanism [[(9)]] which supplies air to the first air distribution valve [[(10)]], a sensor [[(34)]] which detects the power generation load, and a controller [[(30)]] functioning to calculate a first increase amount of hydrocarbon fuel corresponding to an increase amount of the power generation load ~~(S21, S22)~~, to calculate a latent heat amount for vaporizing the first increase amount of hydrocarbon fuel [[(S23)]], to calculate a second increase amount of hydrocarbon fuel for compensating the latent heat amount by a catalytic combustion of the second increase amount of hydrocarbon fuel, to increase a fuel injection amount of the fuel injector [[(1)]] according to the sum of the first increase amount of hydrocarbon fuel and the second increase amount of hydrocarbon fuel [[(S31)]], and to control the air supply mechanism [[(9)]] and the first air distribution valve [[(10)]] to increase an air supply amount to the fuel mixing chamber [[(24)]] according to an increased fuel injection amount by the fuel injector ~~(1)~~ ~~(S27, S31)~~.

12. (Currently Amended) The fuel reforming device as defined in Claim 11, wherein the fuel reforming device further comprises a carbon monoxide removal device [[(8)]] which removes carbon monoxide from the reformate gas by a catalytic reaction using air, the first air distribution valve [[(10)]] is configured to bifurcate the air supplied from the air supply mechanism [[(9)]] to the fuel mixing chamber [[(24)]] and the second air distribution valve [[(11)]], the second air distribution valve [[(11)]] is configured to bifurcate air supplied from the first distribution valve [[(10)]] to the fuel mixing chamber [[(24)]] and the carbon monoxide removal device [[(8)]], and the controller [[(30)]] further functions to estimate a temperature ascending amount of the reformer from the increased fuel injection amount by the fuel injector [[(1)]] and an increased air supply amount to the fuel mixing chamber ~~(24) (S28)~~, to calculate a

generated amount of carbon monoxide in the reformer [[(5)]] corresponding to the increased fuel injection amount and the increased air supply amount [[(S29)]], and to control the air supply mechanism [[(9)]] and the second air distribution valve [[(11)]] to supply a required amount of air to the carbon monoxide removal device [[(8)]] which the carbon monoxide removal device [[(8)]] requires for removing carbon monoxide of the generated amount from the reformate gas.

13. (Currently Amended) The fuel reforming device as defined in ~~any one of~~ Claim 1 ~~through Claim~~ [[6]], wherein the fuel reforming device further comprises a switch [[(35)]] which commands the fuel reforming device to start and stop operation, an air supply mechanism [[(9)]] which supplies air to the first air distribution valve [[(10)]], and a controller [[(30)]] functioning, when the switch [[(35)]] has commanded the reforming device to stop operation, to stop injection of hydrocarbon fuel by the fuel injector ~~(1) (S41)~~, and to maximize an air supply amount of the air supply mechanism ~~(9) (S42)~~.

14. (Currently Amended) The fuel reforming device as defined in ~~any one of~~ Claim 1 ~~through Claim~~ [[6]], wherein the fuel reforming device further comprises a switch [[(35)]] which commands the fuel reforming device to start and stop operation, an air supply mechanism [[(9)]] which supplies air to the first air distribution valve [[(10)]], a heater [[(4)]] which heats the air-fuel mixture, and a controller [[(30)]] functioning, when the switch [[(35)]] has commanded the fuel reforming device to stop operation, to stop injection of hydrocarbon fuel by the fuel injector ~~(1) (S41)~~, to maximize an air supply amount of the air supply mechanism [[(9)]], and to activate the heater [[(43)]] to heat the air-fuel mixture [[(S43)]].

15. (Currently Amended) The fuel reforming device as defined in ~~any one of~~ Claim 1 ~~through Claim~~ [[6]], wherein the fuel reforming device further comprises an air supply mechanism [[(9)]] which supplies air to the first air distribution valve [[(10)]], a heat exchanger [[(6)]] which warms an air supplied by the air supply mechanism [[(9)]] to the first air distribution valve [[(10)]] by heat exchange with the reformate gas, and a bypass passage [[(23)]] which connects the air supply mechanism [[(9)]] with the first air distribution valve [[(10)]] bypassing the heat exchanger [[(6)]].